

AN ECONOMIC ANALYSIS OF CUCUMBER CULTIVATION IN SULTANPUR DISTRICT OF UTTAR PRADESH (INDIA)

G. P. MAURYA¹, VIVEK PAL², G. P. SINGH³ & LOKESH KUMAR MEENA⁴

¹Research Scholar, Department of Agricultural Economics, Institute of Agricultural Sciences,
BHU, Varanasi, Uttar Pradesh, India

²Senior Research Fellow, Department of Agricultural Economics, B A College of Agriculture,
Anand Agricultural University, Anand, Gujarat, India

³Associate Professor, Department of Agricultural Economics, College of Agriculture,
Narendra Dev University of Agri. & Tech, Kumarganj, Faizabad, Uttar Pradesh, India

⁴Research Scholar, Department of Agricultural Economics, Institute of Agricultural Sciences,
BHU, Varanasi, Uttar Pradesh, India

ABSTRACT

Cucumber is a warm season crop grown widely in India and can be fitted very well in to a number of crop rotation of vegetable and non vegetable crops. For conducting this research sixty respondents were randomly selected by using multistage stratified random sampling. The objective of the present research was to work out cost and returns of cucumber cultivation. Per hectare, average cost of cultivation of cucumber was observed Rs.5520.68. The cost of cultivation was higher on medium farms (Rs.7327.14) followed by marginal, small and large farms. Per hectare gross income was maximum on large farms (Rs.121517.31) followed small (Rs.73304.35) marginal (Rs.51513.16) and medium (Rs.46482.11). Per hectare average gross income on overall farms observed to Rs.90016.26. Other average income measures like net income, farm business income, family labour income and farm investment income were Rs.84495.58, 85405.82 & 85046.14 respectively. The study revealed that cucumber cultivation is a lucrative to the farmers of Sultanpur district of U.P, as well as, round the country.

KEYWORDS: Cucumber, Cost Concept, Profitability Aspect, Farm Business and Income

INTRODUCTION

Cucumber (*Cucumis sativus* L.) is an important vegetable and one of the most popular members of the Cucurbitaceae family (Lower and Edwards, 1986; Thoa, 1998). India has a wide range of diverse agro-climatic conditions for growing different vegetables. Vegetables production in India has increased to a level of 146,554,000 metric tons from an area of about 84, 95, 000 hectares (Anonymous, 2011). The importance of vegetable crops in our country can be judged from the fact that majority of the Indian population is vegetarian. Vegetables play a significant role in balanced nutrition, as these are valuable source of carbohydrate, protein, vitamins and minerals. In the vegetable kingdom, cucurbitaceous vegetable crops are of pivotal importance. In the cucurbitaceous vegetable-group, the cucumber is considerably an important vegetable crop cultivated widely across seasons and space. Cucumber is believed to be native to India and

evidence indicates that it has been cultivated in western Asia for 3,000 years. Its local name is Khira or Sasha and scientific name is *Cucumis sativus*. The fruits are edible and very much used as salad. Its fruits are also removed human constipation and good for digestion. The fruits are much used during summer as a cooling food. They are used as salads and for cooking curries. The tender fruits are preferred for pickling kernels of the seeds are used in confectionary (Chakravarty, H. L, 1982). Cucumber occupied large area and is consumed by varying group of people around the year. This is a warm season crop grown widely in India and can be fitted very well into a number of crop rotation of vegetables and non-vegetables crop. It has large potential of yield, income and employment generation per unit of area and time. The area, production and productivity of cucumber in India during 2011-12 were 40000 ha, 607000 tones and 15.17 t/ha, respectively (State of Indian agriculture, GoI, 2012-13). Per hectare productivity of cucumber in India and all regions of U.P, as well as, is low as compared to the developed and number of the developing countries. This is attributed mainly because of imbalanced adoption of the different qualitative and quantitative components of the recommended package of technology.

So far no scientific study on the techno-economic scenario of cucumber cultivation has been conducted in Eastern Region of U.P. The study on “Farm Business Analysis of Cucumber in Sultanpur District of Uttar Pradesh” has been conducted with specific objective, to estimate farm business of cucumber cultivation.

RESEARCH METHODOLOGY

Three stage stratified purposive random sampling technique was applied to arrive at sample farmers (block, villages and respondents form the 1st, 2nd and 3rd stage of sampling). Two blocks, namely, Baldirai and Jagdishpur were selected purposively because cucumber cultivation is one of the popular crops in the area. A list of all the villages of both the blocks was prepared along with the area covered under the selected crop. Two villages were selected from both the blocks enjoying higher concentration under cucumber. Finally four villages were selected. At the 3rd stage a list of all the farmers of four villages were prepared along with their size of holding and categorized into (i) Marginal (<1ha) (ii) Small (1-2 ha) (iii) Medium (2-4 ha) (iv) Large (4 ha and above) category (Table 1). Finally 15 farmers from each selected villages were drawn through proportionate random sampling techniques, corresponding to each category. Ultimately, 60 sample farmers i.e. (2 block x 2 village x 15 farmers) were randomly selected. The simple tabular analysis was used to analyse the data and presentation of the result. The data were related for the agriculture year 2009-10.

Cost Concepts and Income Measures

The various concepts of the cost and income measures applied in the study area as follows

- **Cost Concept**

Cost A₁

- Value of hired human labour
- Value of bullock + machine labour (hired + owned)
- Value of seed + fertilizer + chemical + manure (owned + purchase)
- Irrigation charges.
- Interest on working capital.
- Miscellaneous expenses.

Cost A_2 = Cost A_1 + rent paid for leased land

Cost B_1 = Cost A_1 + interest on value of owned fixed capital assets (excluding land)

Cost B_2 = Cost B_1 + rental value of owned land less land revenue

Cost C_1 = Cost B_1 + imputed value of family labour

Cost C_2 = Cost B_2 + imputed value of family labour

Cost C_3 = Cost C_1 + 10% of cost C_2 (managerial cost)

- **Income Measures**

- **Gross Income:** value of total farm output, whether sold or utilized by farm family.
- **Net Income:** It is difference between gross income and total cost i.e. cost C_3 . (G.I.-Cost C_3).
- **Farm Business Income:** It is difference between gross income and cost A_1 / A_2 (G.I.-Cost A_2).
- **Family Labour Income:** It is difference between gross income and cost B_2 (G.I.-Cost B_2).
- **Farm Investment Income:** it is difference between farm business income and imputed value of family labour (farm business income-imputed value of family labour).

Rent of Owned Land: Estimated on the basis of prevailing rents in the village for ideal types of land or as reported by the sample farmers, subject to the ceiling of fair rents given in the land legislation of the concerned stage (Rs. 8000/year/ha for crop period i.e. Rs. 2000).

Interest on Owned Fixed Capital: Interest on present value of fixed assets chargers at the rate of 8% per annum for crop period.

Interest on Working Capital: Interest is charges at the rate of 4% per annum of the working capital for half of the crop period.

Table 1: Land Holdings Wise Distribution of Sample Farmers

Land Holdings	Land Holdings (in No)
Marginal (< 1 ha)	26
Small (1-2 ha)	7
Medium (2-4 ha)	4
Large (4 ha and above)	23
Total	60

RESULTS AND DISCUSSIONS

Cost of Cucumber Crop of Sample Farmers (Rs. / ha)

It is revealed from the table 2 that on an average per hectare cost of cultivation of cucumber was (Rs.5520.68). The cost of cultivation was observed higher on medium farmers (Rs.7327.14) followed by marginal farmers (Rs.5907.02), small farmers (Rs.5264.62) and large farmers (Rs. 5135.92), respectively. The total cost of cultivation on medium farms was higher due to heavy expenditure on irrigation and bullock labour, as compared with other categories, of farms. The further distribution of the cost of cultivation on overall average farmers, shows the maximum expenditure on tractor

uses i.e. 33.62 per cent followed by the expenditure on manure and fertilizer, seed and total human labour corresponding to 27.63 per cent, 9.59 per cent and 9.52 per cent respectively.

Table 2: Various Cost of Cucumber Crop of Sample Farmers (Rs. / Ha)

Sl. No.	Items	Group of Farmers				
		Marginal (< 1 ha)	Small (1-2 ha)	Medium (2-4 ha)	Large (4 ha)	Overall Farmers
1.	Cost A ₁ /A ₂	4625.78	4320.37	6244.2	4339.28	4562.8
2.	Cost B ₁	4667.39	4368.63	6313.67	4374.66	4603.94
3.	Cost B ₂	4667.39	4368.63	6313.67	4434.04	4610.44
4.	Cost C ₁	5370.02	4786.02	6661.04	4613.72	5011.26
5.	Cost C ₂	5370.02	4786.02	6661.04	4673.10	5017.76
6.	Cost C ₃	5907.02	5264.62	7327.14	5135.92	5520.68

Income Measure of Cucumber Crop of Sample Farmers (Rs. / ha)

The income measure are concerned it may be observed from the table 3 that the gross income per hectare was maximum to Rs. 121570.31 on large farmers followed by small, marginal and medium farmers corresponding to Rs. 77304.35, Rs. 51513.16 and Rs. 46842.11, respectively. Whereas the average gross income on over all farmers came to Rs. 90016.26.

Table 3: Income Measure of Cucumber Crop of Sample Farmers (Rs. / Ha)

Items	Group of Farmers				
	Marginal (< 1 ha)	Small (1-2 ha)	Medium (2-4 ha)	Large (4 ha)	Overall Farmers
Gross income	51513.16	77304.35	46842.11	121570.31	90016.26
Net income	45606.14	72039.73	39514.97	116434.39	84495.58
Farm business income	46887.38	72983.98	40597.91	117231.03	85453.46
Family labour income	46845.77	72935.72	40528.44	117136.27	85405.82
Farm investment income	46184.75	72566.59	40250.54	116991.97	85046.14

Other average income measures like net income, farm business income family labour income and farm investment increased Rs.84495.58, 85453.46, 85405.82 & 85046.14 respectively. It is revealed from the study that large farmers were much aware regarding use of improved technologies and have harvested more yields from their cucumber cultivation.

CONCLUSIONS

The present study concludes that average cost of cultivation of cucumber crop was greater than large size farms but less than other size farms. The cost of cultivation was higher on medium farms followed by marginal, small and large farms. Per hectare gross income was maximum on large farms followed by small, marginal and medium farms. The average gross income on overall farms observed that was less than small farms but greater than others farms size. The gross income and net income were maximum on large farm followed by small, marginal and medium farms.

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